

### III. REMARKS

1. Claims 1, 2, 7, 8, 9, 11, 12, 19 and 20 are amended. Claims 21-23 are new. Claims 6, 10 and 18 are cancelled without prejudice. The drawings are revised as noted by the Examiner and replacement sheets are being submitted herewith. Claims 19 and 20 are amended to correct their dependency from cancelled claim 18. It appears that claim 18 was not part of the original submission and that the claim numbering jumped from claim 17 to claim 19. That error is corrected herein.

2. Claims 1-6, 8, 9 and 12-19 are not unpatentable over Nelson, Jr. et al. (US 2002/0080024) ("Nelson") in view of Dutta et al. (U.S. Patent No. 5,982,813) ("Dutta") under 35 U.S.C. §103(a).

Nelson does not disclose or suggest a communication link that includes one channel operating at a lower data rate to achieve a high signal-to-noise ratio and the other channel providing bandwidth on demand for transferring only user data.

Nelson, in paragraphs 0046-0059, referred to by the Examiner, merely describes a forward link channel 60 and reverse link channels 55, defined as CDMA channels. Applicant's invention recites a TDMA access link, not CDMA. Thus, Nelson does not disclose or suggest each feature of Applicant's invention as claimed.

Combining Dutta with Nelson does not overcome the above-noted deficiencies of Nelson. As noted, Nelson relates to CDMA, not TDMA. Thus, there is no motivation to combine or modify Nelson with Dutta to achieve the features of Applicant's invention. Also, Dutta relates to transmitting data messages over a

communication channel of fixed bandwidth. (Col. 3, lines 59-63). Dutta does not disclose or suggest a communication link that includes one channel operating at a lower data rate to achieve a high signal-to-noise ratio and the other channel providing bandwidth on demand for transferring only user data.

In Dutta<sup>5</sup>, the data rate on the channel is adjusted to meet demand. (Col. 3, line 67 to Col. 4, line 1). Dutta relies on transmit power and modulation format. (Col. 4, lines 1-5). In Dutta, channel bandwidth is fixed. (Col. 6, lines 34-35). Dutta involves the use of a transmit subsystem that responds to variations of input traffic and other conditions. (Col. 10, lines 25-36; see also Col. 8, line 66 to Col. 10, line 24). Dutta is directed to transmit power and modulation format adjustments. (Col. 13, lines 32-48). This does not disclose or suggest Applicant's invention.

In Applicant's invention, the application of Bi-BPSK modulation to a networked TDMA communication data link, offers significant advantages over current approaches. The embedded high SNR tracking channel is used to maintain TDMA slot timing, link synchronization, and slot management. The slot management function, independent of the data transport channel, provides improved quality of link service as well as an extremely high quality conduit for TDMA power/rate control protocol, orchestrates users entering and existing the TDMA network, and may convey a limited amount of mission critical information. The separate user channel is a dedicated conduit for transport of user data and can be dynamically adapted to provide different power/rate control at each slot in order to provide optimal performance based on the need of each user and the link

environment. These are not disclosed or suggested by the combination of Nelson and Dutta.

Traditional TDMA architecture is characterized by fixed slot sizes, a single channel, and fixed data rates. Instead of a BPSK TDMA data link limited to a single channel, the Bi-BPSK data link as recited in Applicant's invention provides two separate channels in each slot. An embedded high SNR tracking channel eliminates the low SNR tracking loop problem typically associated with systems and provides reliable TDMA slot timing, link synchronization, and dynamic power/rate control. The other orthogonal Bi-BPSK channel conveys user information using bandwidth-on-demand techniques that can vary from user slot to slot. Overall TDMA slot efficiency is increased by tailoring slot bandwidth to user needs, and user data rates can be increased beyond what is possible to support using traditional TDMA techniques. These are distinctions of Applicant's invention not found in the combination of Nelson and Dutta.

Thus, each feature of claims 1, 12 and 17 are not disclosed or suggested by the combination of Nelson and Dutta. Claims 2-11, 13-16 and 19-20 should be allowable at least by reason of their respective dependencies.

3. Claims 7, 10 and 11 are not unpatentable over Nelson, Dutta and Kinnunen et al. ("Kinnunen").

These claims should be allowable at least by reason of their respective dependencies for the above stated reasons.

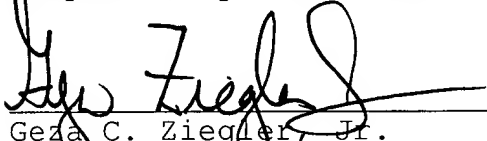
Furthermore, Kinnunen, in Col. 5, lines 44-48, merely discusses time multiplexing the physical data channels and dedicated physical control channels to the same slot. Kinnunen also discusses transmitting the channels in parallel. However, there

is no disclosure in Kinnunen of a communication link that includes one channel operating at a lower data rate to achieve a high signal-to-noise ratio and the other channel providing bandwidth on demand for transferring only user data as is claimed by Applicant. Thus, the combination of Kinnunen, Nelson and Dutta does not disclose or suggest each feature of Applicant's invention as claimed, and allowance is respectfully solicited.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

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Respectfully submitted,

  
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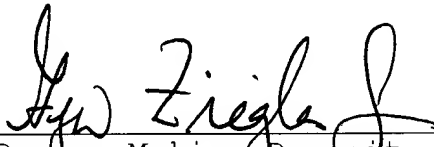
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